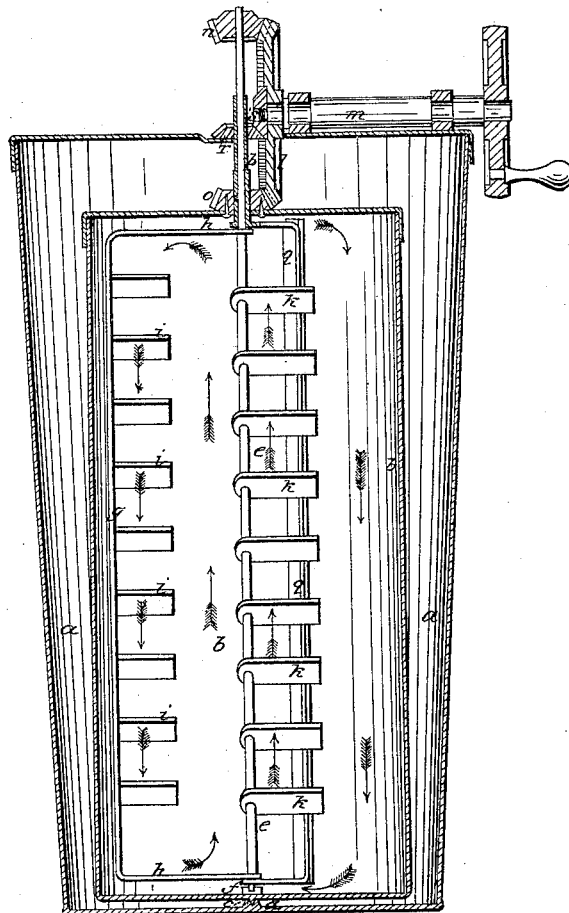


A. W. EDWARDS.  
Ice-Cream Freezer.

No. 51,160.

Patented Nov. 28, 1865.



Witnesses:

*F. Gould*  
*W. B. Gleason*

Inventor:

*A. W. Edwards*  
*by his Atty*  
*W. B. Crosby*

# UNITED STATES PATENT OFFICE.

ALBERT W. EDWARDS, OF MENDOTA, ILLINOIS.

## ICE-CREAM FREEZER.

Specification forming part of Letters Patent No. **51,160**, dated November 28, 1865.

*To all whom it may concern:*

Be it known that I, ALBERT W. EDWARDS, of Mendota, in the county of La Salle and State of Illinois, have invented an Improved Ice-Cream Freezer; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The object of this invention is to obtain such a construction and arrangement of rotary beaters in the cream-holder as shall conduce to the most rapid congelation of the cream. This result is effected by the production of central and outer currents, the cream being carried up in the center and down in the outer portions of the cream-holder, the mechanism employed for the purpose being two vertical sets of rotary beaters, the beaters in one set running from the center spindle outward, and those of the other from a vertical arm near the inner surface of the cream-cylinder inward, each set rotating in a space distinct from the other and being so inclined with respect to each other that the outer set shall produce a downward current of the cream and the inner set an upward current.

In a freezer patented in the year 1862 there were two sets of beaters employed, one set running from the spindle outward and the other set from or near the inner surface of a stationary scraper inward, but the two sets overlapped, so that instead of producing distinct up and down currents they merely acted in their rotation to whip or commingle the particles of cream. Such is not the object or result of my invention, which is to produce an inner and outer vertical current, and it is the disposition of the arms or beaters effecting this current or currents that constitutes my improvement.

In the construction of rotary cream-cylinders a stationary scraper has sometimes been employed, but it is found that in the rapid rotation required to freeze the cream too great strain is brought to bear upon the scraper; and to obviate this defect I give to the scraper a rotary motion in the same direction with the motion imparted to the cream-vessel, but at a slower rate of speed, thus freeing the scraper from injurious strain, while at the same time

giving to the surface of the cream-holder such relative motion with respect to the scraper as to cause the adhering particles of freezing cream to be detached from the sides of the chamber. The construction or arrangement by which this is effected constitutes part of my invention.

The drawing shows a vertical central section of a freezer embodying my improvements.

*a* denotes the ice-chamber or receptacle, *b* the cream-cylinder having a pivot, *c*, at its lower end, by which it is supported so as to turn in a bearing, *d*, in the ice-vessel *a*. A vertical spindle, *e*, extends centrally through the cream-holder, and is supported in a bearing, *f*, in the lower end of the cream-holder. The spindle extends up through the cover of the cream-holder, and thence through the cover of the ice-vessel *a*, thereby sustaining the cream-holder centrally in the vessel *a*.

The spindle *e* has a vertical bar, *g*, attached to it by arms *h*, and to this bar *g* and to the spindle *e* two series of beaters, *i k*, are fixed, the set *i* extending from the bar toward the spindle, and the set *k* extending radially from the spindle, the set *k* rotating in the center of the cream-holder, and the set *i* in the space between the path of rotation of the beaters *k* and the inner surface of the vessel *b*. Each beater *i* is inclined so that in its rotative movement it shall force the cream with which it comes in contact downward, and each beater *k* is inclined so that in its rotative movement it shall force the cream upward, the current thus produced being down at the sides and up at the center, as shown by the arrows.

Rotation is imparted to the spindle and beaters by means of a bevel-gear, *l*, on the crank-shaft *m*, meshing into a pinion, *n*, fixed upon the spindle *e*, and similar rotative movement is imparted to the cream-holder *b* by the driving-gear *l* meshing into a pinion, *o*, fixed on the top of the cover of the cream-holder, the pinion *o* being fast on the cover, but turning loosely with respect to the spindle. The spindle *e* extends loosely through a tubular spindle, *p*, upon which is hung the scraper *q*. This tubular spindle has fast upon it a pinion, *r*, into which a pinion, *s*, on the crank-shaft engages, the scraper being thereby turned in the same direction as the cream-holder is rotated,

but at a much slower speed, thus effecting the detachment of the adhering cream without strain upon the scraper.

It is well known that in the action of freezers the tendency of the particles of cream is first to freeze at the top and along the outer portions of the cream-vessel. If, as these particles become chilled and frozen, they can be carried into the central part of the vessel, and the cream at the center be carried to the sides, it will be obvious that the cream will be frozen with greater expedition than in any other movement that can be imparted to such particles, and that this can be best effected by instituting regular currents from the coldest to the warmest parts of the vessel, and vice versa, such currents being down from the top by the sides and up through the center.

By such construction I am enabled to freeze the cream with much greater facility than can

be effected with the freezers above alluded to, or with any others in common use.

I claim—

1. The combination of a cream-holder rotating in one direction, with two sets of beaters rotating therein in the opposite direction, when the beaters are so disposed that one set creates a central upward current and the other outer downward currents, substantially as set forth.

2. In combination with a rotating cream-holder, a rotating scraper having a movement in the same direction with the cream-holder, but at a different speed.

In witness whereof I have hereunto set my hand this 12th day of October, A. D. 1865.

ALBERT W. EDWARDS.

Witnesses:

F. GOULD,

J. B. CROSBY.